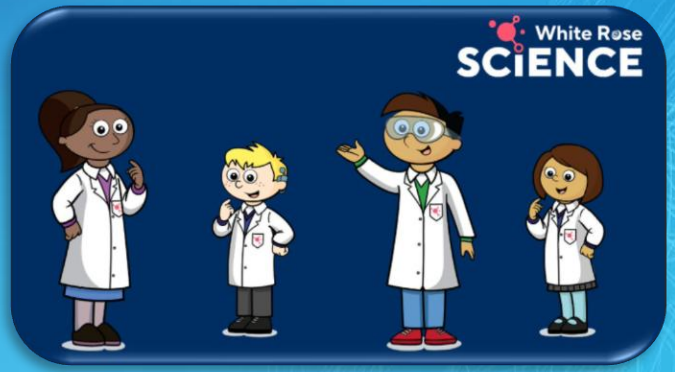
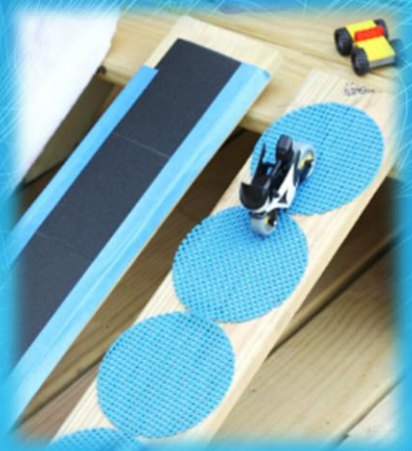
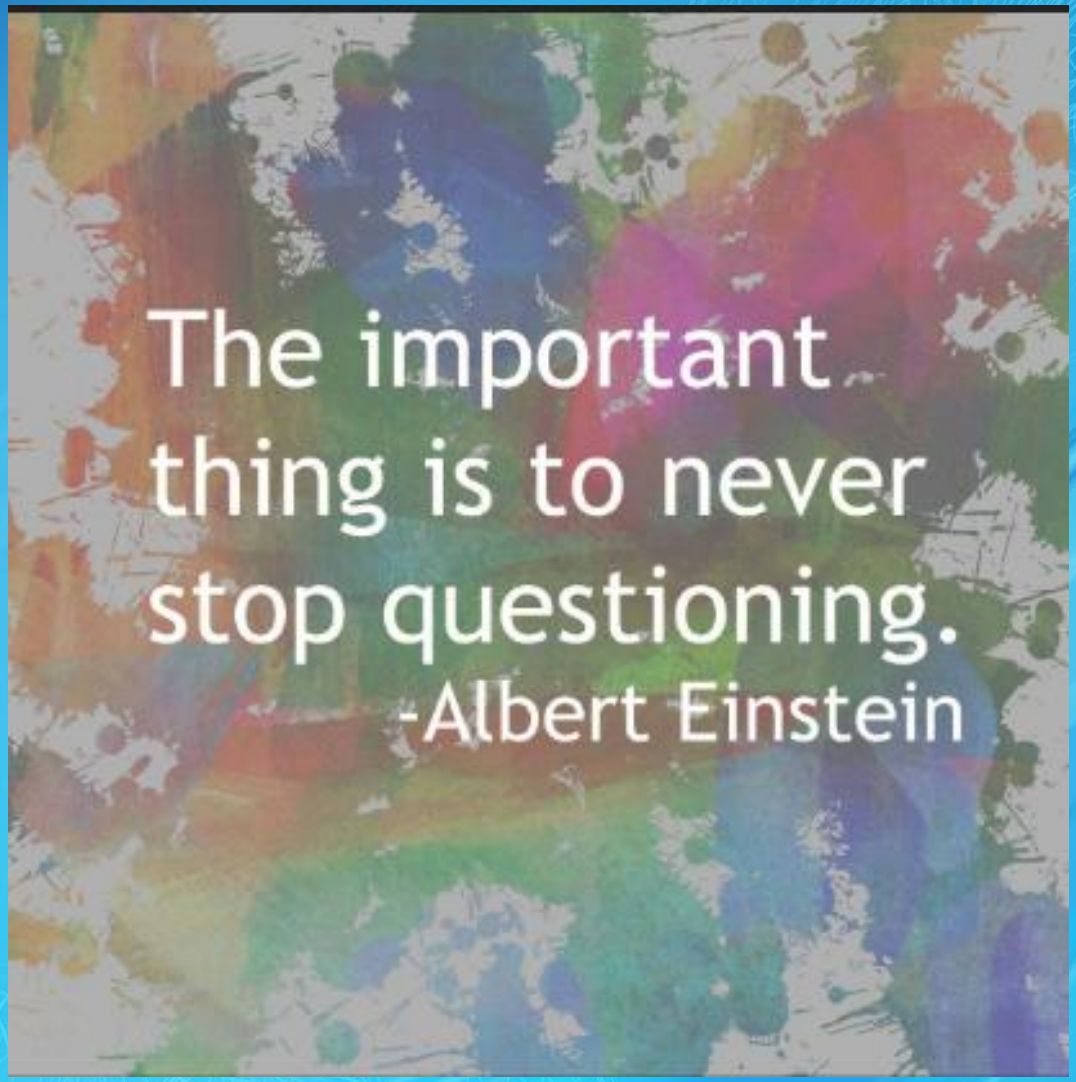




Our Science Curriculum

"Dingle Community Primary School, where every child has a V.O.I.C.E"



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Key concepts

Through collaboration with subject leaders, specialists and scientific pedagogy, our school community have developed key concepts for each subject. These key concepts are the skills and knowledge essential to pupils achieving and exceeding standards in science. They are subject specific and allow children to progressively build skills throughout their Dingle journey. When pupils encounter a key concept, they will revisit other topics where they learnt about the same concept to enable them to make connections and build the schema they need.

Science

								
Working Scientifically	Animals including humans	Plants	Living things and their habitats	Materials	States of matter	Forces	Energy	Earth Science
	Biology			Chemistry		Physics		

Key concepts in Science

*Pupils build substantive knowledge of the main **concepts**, **models**, **laws** and **theories** across the three disciplines of science: biology, chemistry and physics. They will also learn about significant scientists and discoveries and the impact of these on our lives. Through each unit, pupils will develop their disciplinary knowledge as they learn how to work scientifically.*

Working scientifically* 

This is embedded through all units. Pupils will learn how scientific enquiry is used to grow and develop knowledge in science. They will learn how scientists use a variety of enquiry strategies to answer scientific questions. Different questions lead to different types of enquiry and are not limited to fair testing. Pupils will learn to use these enquiry strategies confidently and know that different strategies may be needed at different times. Through different units of science, pupils will learn the following:

- **Observing over time:** (observing or measuring how one variable changes over time)
- **Identifying and classifying:** (identifying and naming materials/living things and making observations or carrying out tests to organise them into groups.)
- **Looking for patterns:** (making observations or carrying out surveys of variables that cannot be easily controlled and looking for relationships between two sets of data)
- **Comparative and fair testing:** (observing or measuring the effect of changing one variable when controlling others)
- **Answering questions using secondary sources of evidence:** (answering questions using data or information that they have not collected first hand)
- **Using models:** (Developing or evaluating a model or analogy that represents a scientific idea, phenomenon or process)

Biology: **Animals including humans**  **Plants**  **Living things and their habitats** 

Pupils will develop an understanding of **living things and their environments** through the study of animals, humans, plants and habitats. They will learn about reproductions, inheritance and evolution through the study of life processes and life cycles.

Chemistry: **Materials**  **States of matter** 

Pupils will learn about states of matter through the study of solids, liquids and gases. They will look at the properties of materials including rocks and fossils and will study reversible and irreversible changes in materials.

Physics: **Energy**  **Forces**  **Earth Sciences** 

Pupils will develop an understanding of the concepts and laws that apply to physics. They will study the concept of **energy** by learning about light, sound and electricity. They will develop an understanding of **forces** by studying and investigating friction, air resistance, gravity and magnets. They will learn about **Earth and space**, studying seasons, day and night, the solar system and beyond.

*These concepts are studied in all units of science

Our Curriculum Overview

We are Scientists	Autumn Term	Spring Term	Summer Term
EYFS	In EYFS Children are taught science through the strand 'Understanding our world'		
Year 1	The human body Seasonal changes Materials	Planting Animals Seasonal changes Caring for the planet	Plants Seasonal changes Growing and cooking
Year 2	Animals needs for survival Humans Materials Plastic	Plants light and dark Living things and their habitats	Plants (bulbs and seeds) Growing up Wildlife
Year 3	Skeletons Movement Nutrition and diet Food waste Rocks	Fossils Soils Light	Plants Forces Magnets Biodiversity
Year 4	Group and classify living things States of matter Data collection	Sound Data collection Electricity Sustainability	Data collection Habitats Deforestation Food chains The digestive system
Year 5	Forces Space Global warming	Properties of materials Animals including humans Life cycles	Reproduction Reversible and irreversible changes Plastic pollution
Year 6	Living things and their habitats Electricity Renewable energy	Light Light pollution The circulatory system Diet, drugs and lifestyle	Variation Adaptation Fossils Year 7 ready themed projects

Our Curriculum Overview

We are Scientists	Autumn Term	Spring Term	Summer Term
Year 1	**The human body** Parts of human body **Materials** Identify and name Suitability of materials Changing shapes of solid objects **Seasonal changes**	**Animals** What animals eat Where they get their food Simple food chains Common animals Carnivores/herbivores/ Omnivores Describe & compare animals **Planting** **Seasonal changes** **Caring for the planet**	**Plants** Identify and name Structure of plants and trees **Growing and cooking** Growing seeds/bulbs What plants need to grow. **Seasonal changes**

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Year 2

Animals' needs for survival

How can animals be grouped based on their needs for survival?

Animals have offspring

Basic needs

Exercise, food and hygiene

Humans

Do the oldest children have the most teeth?

Materials

Which material would be best for an umbrella?

Identifying materials Physical properties

Comparing/grouping

Plastic

How is plastic helpful and harmful?

Plants light and dark

Do plants grow healthier in the light or the dark?

Living things and their habitats

What different habitats are there on planet earth and what lives in each habitat?

Living, dead, never lived

Naming plants, animals and their habitats

How animals are suited to their habitats

Plants (bulbs and seeds)

How do bulbs and seeds change over time?

Growing up

Are there patterns between the life cycles of different animals?

Wildlife

Why is it important to care for wildlife?

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Year 3

Nutrition and diet

What is a balanced diet and is it important?

Food and nutrition

Skeletons and muscles

Food waste

What is food waste and how can it be reduced?

Rocks

How can rocks be identified and grouped based upon their properties?

Compare and group.

Properties

Fossils

Fossils

How are fossils formed?

Soils

Which soil absorbs the most water?

Compare and group

Properties

Fossils

Soils

Skeletons

How can animals be sorted and grouped based on their skeletons?

Movement

Light

How does the distance between the light source and the object affect the size of a shadow?

Light and dark

Light reflecting off surfaces

Dangers of light

Shadows

Plants

Does the number of seeds within one plant pot affect the growth of the plants?

Functions of parts of plants

What plants need for life and growth

Water transportation

Life cycle of plant

Pollination, seed dispersal

Forces

How does material on the ramp affect the distance a car travels?

Magnets

Movement on different surfaces

Magnets: attract/repel

Grouping magnetic/ non-magnetic objects

Biodiversity

What is biodiversity and how can we increase it?

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Year 4

States of matter

How does the temperature of water affect the time it takes for ice to melt

Solids liquids gases

Changing states

Evaporation, condensation

Data collection

The digestive system

What is the digestive system and how does it work?

Teeth

Digestive system

Sound

How does the distance from the sound source affect the volume of the sound?

How sounds are made

How sounds travel

Changing sounds: Pitch, volume, distance

Data collection

Electricity

What materials are conductors or insulators of electricity and is there a pattern?

Common appliances

Circuits

Switches

Conductors/insulators

Sustainability

How can we reduce our energy usage?

Data collection

What living things are in our area and how does it change over time?

Habitats

What impact do humans have on different habitats?

Human impact – environment/ pollution

Deforestation

What are the impacts of deforestation on the planet?

Food chains

How has human activity affected food chains?

Food chains

Predators and prey

Classification/Keys

Group and classify living things.

How can living things be grouped and classified?

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Year 5

Forces

Does the surface area of a parachute affect how long it takes for it to fall to the ground?

Gravity
Air resistance
Water resistance
Friction
Levers, pulleys, gears

Space

How have ideas about the solar system changed over time?

The solar system
Movement of the moon
Day and night

Global warming

What is global warming and how can we help to reduce it?

Properties of materials

Which material is the best insulator of heat?

Compare and group.
Properties
Conductors/insulators (heat/electricity)
Uses of materials

Animals including humans.

Are there patterns linking gestation periods and life spans?

Classifying living things: plants, animals, micro-organisms
Reasons for classifying

Life cycles

How are the life cycles of animals similar and how are they different?

Life cycles: mammals, birds, amphibians, insects

Reproduction

Which plant cutting produces the tallest plant?

Life processes and reproduction in plants and animals

Reversible and irreversible changes

Which changes are reversible, and which are irreversible?

Dissolving
Solutions
Solids, liquids, gases
Mixing / separating

Plastic pollution

What is plastic pollution and what are the impacts of plastic pollution on earth?

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Year 6

Living things and their habitats

How can animals, plants and microorganisms be identified, classified, and grouped?

Electricity

How does the voltage in a circuit affect the loudness of a buzzer?

Adjusting brightness or buzzers using voltage
Switches
Control of components
Circuit diagrams

Renewable energy

What is renewable energy and how can we use it to generate electricity?

Light

How does the distance from a light source affect the size of a shadow?

How light travels
How we see
Light sources
Shadows and shapes

Light pollution

What is light pollution and how can we reduce it?

The circulatory system

What is the circulatory system and how does it work?

Heart, blood
Fitness and health
Transportation of nutrients and water

Diet, drugs and lifestyle.

How does the duration of exercise affect heart rate?

How humans change as they age
Staying healthy
Impact of diet, exercise, lifestyle

Variation

Adaptation

Is the type of food a bird eats related to the shape of its beak?

Fossils

How have fossils changed over time and does this provide evidence for evolution?

Changes over time
Evidence from fossils
Living things produce offspring.
How animals and plants adapt to environment
Evolution

Year 7 ready themed projects

"Dingle Community Primary School, where every child has a V.O.I.C.E"

Our Dingle Values

"Dingle Community Primary School, where every child has a V.O.I.C.E"

V – be Valued for who we are

O – have Opportunities to grow, thrive and make a difference

I – Feel Included with a sense of belonging

C – Care for our community.

E - have high Expectations of ourself and others

"A child who feels heard becomes a child who dares to dream"

We show **inclusivity** and **value** all theories and predictions that people may make. We enjoy learning about scientists from a range of backgrounds.
We **value** and are **compassionate** towards the views of our classmates and scientists that we learn about.
We are **empowered** with our new learning, aim high and enjoy being challenged. In science, we enjoy asking questions and thinking of a range of ways that we can gather results.
We embrace **opportunities** and understand that investigations can surprise us! We understand the importance of fair testing and collecting averages.

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We are incredibly proud to be working towards our Rights Respecting Schools award.
Rights are becoming an essential part of our curriculum and articles are therefore referenced in all our subjects.

RIGHTS RESPECTING SCHOOLS

unicef UNITED KINGDOM

British Values are an integral part of our curriculum, and we purposefully plan many opportunities to help our children understand and celebrate life in modern Britain.

Sustainability and caring for our world is another area of significance to our curriculum. We therefore ensure the Global Goals for Sustainable Development are also considered and shared with our pupils.

Dingle Community Primary School

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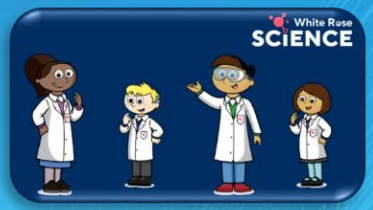
Vocabulary and recommended reads

Famous scientists across our curriculum

Progression in our key concepts



Our Intent Documentation

Please visit our Science Curriculum webpage to find more information.

How we support SEND in Science

Our Enrichment activities

Examples of our classwork

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